

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-23 (Canceled).

24. (Original) An apparatus comprising:

a signal input;

a processed signal output;

control circuitry coupled to the input and the output, the circuitry including executable instructions for sampling a received signal at a first rate, forming an averaged signal based on a first number of samples, further instructions for evaluating a variability characteristic of the received signal and for simultaneously altering both the sample rate and number of samples and including a timer for determining when the sample rate is to be altered again.

25. (Original) An apparatus as in claim 24 which includes a display, coupled to the control circuitry, which displays information pertaining to the received signal.

26. (Original) An apparatus as in claim 24 which includes executable instructions to maintain the altered sample rate until the timer times out.

27. (Original) An apparatus as in claim 24 which includes additional instructions for incrementally altering the number of samples during a selected time interval.

28. (Original) An apparatus as in claim 27 where the additional instructions linearly alter the number of samples during the selected time interval.

29. (Original) An apparatus as in claim 27 where the additional instructions linearly alter

the number of samples during at least one of sampling at the first rate, or, sampling at the altered rate.

30. (Original) An apparatus as in claim 24 which includes an ambient condition sensor coupled to the signal input.

31. (Original) An apparatus as in claim 27 which includes an ambient condition sensor coupled to the signal input.

32. (Original) An apparatus as in claim 31 which includes a display, coupled to the control circuitry, which displays information pertaining to the ambient condition.

33. (Original) An apparatus as in claim 32 where the display is configured to present alpha-numeric information pertaining to the ambient condition.

34. (Original) An apparatus as in claim 33 where the sensor comprises a sensor of a selected fluid.

35. (Original) An apparatus as in claim 24 where the timer is implemented as one of executable instructions in combination with a hardware processor, or, a hardwired timing device.

36-46 (Canceled).

47. (Currently Amended) ~~A detector as in claim 10~~ A detector responsive to an environmental condition comprising:

at least a first sensor generating an output representative of the sensed environmental condition, the output including noise that is not representative of the sensed environmental condition;

a processor and executable instructions that process and average the sensor's output to remove at least some of noise and produce a processed signal where the degree of averaging is

altered as a function of time in response to at least one of the output or the signal, and including instructions to evaluate the processed signal where the executable instructions include:

instructions for sampling a noisy signal;
instructions for establishing an average noise parameter for the signal;
instructions for updating a parameter indicative of a number of signal samples to be used in averaging the sensor's output;
instructions for forming the average of the sensor's output;
instructions for comparing the averaged sensor output value to a representation of the average noise parameter, and responsive thereto, including further instructions for altering a sample rate parameter and for altering the number of signal samples used averaging the sensor's output.

48. (Previously Presented) A detector as in claim 47 which includes:

additional instructions for continuously varying the number of signal samples.

49. (Previously Presented) A detector as in claim 47 which includes:

additional instructions for establishing a range over which the number of signal samples can be altered.

50. (Previously Presented) A detector as in claim 47 which includes:

additional instructions for establishing a time interval during which the number of signal samples can be varied.

51. (Currently Amended) A detector as in claim 39 A detector responsive to an environmental condition comprising:

at least a first sensor generating an output representative of the sensed environmental condition, the output including noise that is not representative of the sensed environmental condition; a processor and executable instructions that process and average the sensor's output to remove at least some of noise and produce a processed signal where the degree of averaging is altered as a function of time in response to at least one of the output or the signal, and including instructions to

evaluate the processed signal;

where the executable instructions establish at least first and second sample rates with the second sample rate higher than the first; and
establish at least a second degree of averaging with the second degree less than the degree of averaging;

which includes instructions which simultaneously alter both selected sample rate and a number of samples and including a timer for determining when the sample rate is to be altered again.

52. (Previously Presented) A detector as in claim 51 which includes a display, coupled to the processor, which displays information pertaining to the received signal.

53. (Previously Presented) A detector as in claim 51 which includes executable instructions to maintain the altered sample rate until the timer times out.

54. (Previously Presented) A detector as in claim 51 which includes additional instructions for incrementally altering a number of samples during a selected time interval.

55. (Previously Presented) A detector as in claim 54 where the additional instructions linearly alter the number of samples during the selected time interval.

56. (Previously Presented) A detector as in claim 54 where the additional instructions linearly alter the number of samples during at least one of sampling at a first rate, or, sampling at an altered rate.

57. (Previously Presented) A detector as in claim 47 where the sensor comprises a sensor of a selected fluid.

58. (Previously Presented) A detector as in claim 51 where the timer is implemented as one of executable instructions in combination with the processor, or, a hardwired timing device.

59. (Previously Presented) An apparatus comprising:

a signal input;

control circuitry coupled to at least the input, the circuitry including first software that samples a received signal at a first rate, forming an averaged signal based on a first number of samples, and second software that evaluates variability of the received signal and simultaneously alters both the sample rate and number of samples in response thereto.

60. (Previously Presented) An apparatus as in claim 59 where the second software reduces the number of samples from the first number in response to increasing variability of the received signal.

61. (Previously Presented) An apparatus as in claim 59 where the second software increases a sample rate of the received signal from the first rate in response to increasing variability of the received signal.

62. (Previously Presented) An apparatus as in claim 59 where the second software increases the number of samples from the first number in response to decreasing variability of the received signal.

63. (Previously Presented) An apparatus as in claim 59 where the second software decreases a sample rate of the received signal for the first rate in response to decreasing variability of the received signal.

64. (Previously Presented) An apparatus as in claim 59 which includes one of software, or a circuit to establish at time interval.

65. (Previously Presented) An apparatus as in claim 64 where an altered sample rate is

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maintained during, at least, the time interval.